

WHAT IS CLAIMED IS:

1. An electric wave transmitting and receiving apparatus for a wireless terminal, comprising:

a support member rotatably supported in the terminal;

a vertical polarization antenna connected to the support member;

a bias member which returns the support member to an original position from a rotated position; and

a connector which electronically connects the vertical polarization antenna to a printed circuit board mounted in the terminal.

2. The apparatus of claim 1, wherein the connector comprises:

a feeder line at least partially located on the support member and in contact with the vertical polarization antenna; and

an elastic supporting portion coupled to the printed circuit board and in contact with the feeder line.

3. The apparatus of claim 1, further comprising:

a circular polarization antenna connected to the support member; and

a connector which electronically connects the printed circuit board to the circular polarization antenna.

4. The apparatus of claim 3, wherein the connector comprises:
 - a feeder line at least partially located on the support member and in contact with the circular polarization antenna; and
 - an elastic supporting portion coupled to the printed circuit board and in contact with the circular polarization antenna.
5. The apparatus of claim 1, wherein the support member has a cylindrical shape.
6. The apparatus of claim 1, wherein one end of the bias member is fixed to a stopping protrusion on the support member and another end of the bias member is coupled to a body of the terminal.
7. The apparatus of claim 1, wherein the bias member is a spring.
8. An electric wave transmitting and receiving apparatus for a wireless terminal, comprising:
 - a support member rotatably supported in the terminal;
 - a vertical polarization antenna connected to the support member;
 - a bias member which returns the support member to an original position from a rotated position;
 - a first connector which connects the vertical polarization antenna to a printed circuit board of the terminal;

a circular polarization antenna connected to the support member; and
a second connector which connects the circular polarization antenna to the printed circuit board.

9. The apparatus of claim 8, wherein the first connector comprises:

a feeder line at least partially located on the support member and in contact with the vertical polarization antenna; and

an elastic supporting portion coupled to the printed circuit board and in contact with the feeder line.

10. The apparatus of claim 8, wherein the second connector comprises:

a feeder line at least partially located on the support member and in contact with the circular polarization antenna; and

an elastic supporting portion coupled to the printed circuit board and in contact with the circular polarization antenna.

11. The apparatus of claim 10, wherein the feeder line is located in an axial hole at a center of the support member and continues along a circumferential surface of the support member.

12. A wireless terminal, comprising:
a body;
a cover rotatably connected to the body; and
a support member rotatably mounted within the body and supporting an antenna.

13. The terminal of claim 12, wherein the support member rotates from a first position to a second position when the cover is opened relative to the body, and wherein the antenna rotates with the support member as a result of being supported by the antenna.

14. The terminal of claim 13, wherein the support member rotates as a result of a portion of the cover pressing against the support member when the cover is opened relative to the body.

15. The terminal of claim 13, wherein the portion of the cover which presses against the support member is a protruding member extending from the cover.

16. The terminal of claim 12, further comprising:
an electrical contact on the support member,
wherein one end of the contact is coupled to the antenna and a second end is coupled to a circuit of the terminal.

17. The terminal of claim 16, further comprising:
wherein the contact is at least partially formed on an outer surface of the support member.
18. The terminal of claim 17, wherein the support member has a substantially cylindrical shape and wherein the contact is at least partially formed along an outer circumferential surface of the support member.
19. The terminal of claim 17, wherein the support member has a substantially cylindrical shape and wherein the contact is at least partially formed along an axial surface of the support member
20. The terminal of claim 17, further comprising:
a conductive member located between the circuit and electrical contact,
wherein the electrical contact has a length sufficient to maintain an electrical connection between the conductive member and the contact during rotation of the support member.
21. The terminal of claim 20, wherein the conductive member is elastically biased.

22. The terminal of claim 13, further comprising:
a bias member which returns the support member to the first position when the cover is closed relative to the body.

23. A wireless terminal, comprising:
a body;
a first antenna;
a cover rotatably connected to the body; and
a support member rotatably mounted within the body and supporting the first antenna.

24. The terminal of claim 23, wherein the support member rotates from a first position to a second position when the cover is opened relative to the body, and wherein the first antenna rotates with the support member as a result of being supported by the first antenna.

25. The terminal of claim 24, wherein the support member rotates as a result of a portion of the cover pressing against the support member when the cover is opened relative to the body.

26. The terminal of claim 24, wherein the portion of the cover which presses against the support member is a protruding member extending from the cover.

27. The terminal of claim 23, wherein the antenna is a vertical polarization antenna.

28. The terminal of claim 23, further comprising:
an electrical contact on the support member,
wherein one end of the contact is coupled to the first antenna and a second end is coupled to a circuit of the terminal.

29. The terminal of claim 28, further comprising:
wherein the contact is at least partially formed on an outer surface of the support member.

30. The terminal of claim 29, wherein the support member has a substantially cylindrical shape and wherein the contact is at least partially formed along an outer circumferential surface of the support member.

31. The terminal of claim 29, wherein the support member has a substantially cylindrical shape and wherein the first contact is at least partially formed along an axial surface of the support member

32. The terminal of claim 29, further comprising:
a conductive member located between the circuit and electrical contact,
wherein the electrical contact has a length sufficient to maintain an electrical connection between the conductive member and the contact during rotation of the support member.
33. The terminal of claim 32, wherein the conductive member is elastically biased.
34. The terminal of claim 24, further comprising:
a bias member which returns the support member to the first position when the cover is closed relative to the body.
35. The terminal of claim 23, further comprising:
a second antenna on the support member,
wherein the first antenna is a vertical polarization antenna and the second antenna is a circular polarization antenna.
36. The terminal of claim 35, further comprising:
a first electrical contact which electrically connects the vertical polarization antenna to a circuit of the terminal; and
a second electrical contact which electrical connects the circuit to the circular polarization antenna.

37. The terminal of claim 36, wherein the first and second electrical contacts have lengths sufficient to maintain electrical connection between the vertical and circular polarization antennas and the circuit during rotation of the support member.

38. The terminal of claim 35, wherein the vertical polarization antenna is fixed to a first surface of the support member and the circular polarization antenna is fixed to a second surface of the antenna.

39. The terminal of claim 35, wherein the support member has a substantially cylindrical shape and wherein the vertical polarization antenna is connected to a circumferential surface of the support member and the circular polarization antenna is connected to an axial surface of the support member.